



Time-series analysis of weather and mortality patterns in Nairobi's informal settlements

Author(s): Egondi T, Kyobutungi C, Kovats S, Muindi K, Ettarh R, Rocklov J
Year: 2012
Journal: Global Health Action. 5: 23-32

Abstract:

BACKGROUND: Many studies have established a link between weather (primarily temperature) and daily mortality in developed countries. However, little is known about this relationship in urban populations in sub-Saharan Africa. **OBJECTIVES:** The objective of this study was to describe the relationship between daily weather and mortality in Nairobi, Kenya, and to evaluate this relationship with regard to cause of death, age, and sex. **METHODS:** We utilized mortality data from the Nairobi Urban Health and Demographic Surveillance System and applied time-series models to study the relationship between daily weather and mortality for a population of approximately 60,000 during the period 2003-2008. We used a distributed lag approach to model the delayed effect of weather on mortality, stratified by cause of death, age, and sex. **RESULTS:** Increasing temperatures (above 75th percentile) were significantly associated with mortality in children and non-communicable disease (NCD) deaths. We found all-cause mortality of shorter lag of same day and previous day to increase by 3.0% for a 1 degree decrease from the 25th percentile of 18 degrees C (not statistically significant). Mortality among people aged 50+ and children aged below 5 years appeared most susceptible to cold compared to other age groups. Rainfall, in the lag period of 0-29 days, increased all-cause mortality in general, but was found strongest related to mortality among females. Low temperatures were associated with deaths due to acute infections, whereas rainfall was associated with all-cause pneumonia and NCD deaths. **CONCLUSIONS:** Increases in mortality were associated with both hot and cold weather as well as rainfall in Nairobi, but the relationship differed with regard to age, sex, and cause of death. Our findings indicate that weather-related mortality is a public health concern for the population in the informal settlements of Nairobi, Kenya, especially if current trends in climate change continue.

Source: <http://www.ncbi.nlm.nih.gov/pmc/articles/PMC3509073>

Resource Description

Exposure :

weather or climate related pathway by which climate change affects health

Precipitation, Temperature

Temperature: Extreme Cold, Extreme Heat, Fluctuations

Geographic Feature:

resource focuses on specific type of geography

Climate Change and Human Health Literature Portal

Urban, Other Geographical Feature

Other Geographical Feature : Sub-trpoical

Geographic Location: ☐

resource focuses on specific location

Non-United States

Non-United States: Africa

African Region/Country: African Country

Other African Country: Kenya

Health Impact: ☐

specification of health effect or disease related to climate change exposure

Cancer, Cardiovascular Effect, Developmental Effect, Diabetes/Obesity, Infectious Disease, Malnutrition/Undernutrition, Morbidity/Mortality, Respiratory Effect, Other Health Impact

Cardiovascular Effect: Other Cardiovascular Effect

Cardiovascular Disease (other): Hypertension

Developmental Effect: Reproductive

Infectious Disease: Airborne Disease, Vectorborne Disease

Airborne Disease: Measles, Meningitis, Tuberculosis

Vectorborne Disease: Mosquito-borne Disease

Mosquito-borne Disease: Malaria

Respiratory Effect: Bronchitis/Pneumonia, Other Respiratory Effect

Respiratory Condition (other) : Tuberculosis; measles; meningitis

Other Health Impact: HIV; AIDS

Population of Concern: A focus of content

Population of Concern: ☐

populations at particular risk or vulnerability to climate change impacts

Children, Elderly, Low Socioeconomic Status

Resource Type: ☐

format or standard characteristic of resource

Research Article

Timescale: ☐

time period studied

Time Scale Unspecified